Vol. 9. Part 2. Pp. 17-40. 15th February, 1940.

IMP INST. ENT. LIBRARY 15 FEB 1940 E. 344 B

THE PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Series B. TAXONOMY

(being the continuation of Stylops)

World List abbreviation: *Proc. R. ent. Soc. Lond.* (B)

CONTENTS

	PAGE
BENSON, Robert B., M.A., F.R.E.S. A new species of *Pleroneura* Konow (XYELIDAE) from Algiers (Hymenoptera Symphyta) . .	39–40, 2 figs.
FRASER, Lt.-Col. F. C., I.M.S. Retd., F.R.E.S. A note on the venation of *Pentathemis membranulata* Karsch (Odonata) . . .	17–18, 1 fig.
HINTON, H. E., Ph.D., F.R.E.S. A revision of the genus *Bufonides* Bolivar (Orthoptera, TETRIGIDAE)	30–38, 34 figs.
MALLOCH, John R. OTITIDAE (Dipt.) of the Admiralty Islands	19–20, 1 fig.
MALLOCH, John R. Two new species of SAPROMYZIDAE from New Guinea (Diptera) . .	20–22, 3 figs.
WILKINSON, D. S., F.R.E.S. New species of *Apanteles* (Hym. Brac.).—I	23–29, 5 figs.
BOOK NOTICE	29

LONDON:
PUBLISHED BY THE SOCIETY AND
SOLD AT ITS ROOMS, 41, QUEEN'S GATE, S.W.7

Price 3s. 0d.

THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Founded, 1833. Incorporated by Royal Charter, 1885.

PATRON—HIS MAJESTY THE KING.

OFFICERS and COUNCIL for the SESSION, 1939–1940.

J. C. F. Fryer, O.B.E., M.A., *President.*

E. A. Cockayne, M.A., M.D., F.R.C.P.
Francis Hemming, C.M.G., C.B.E.
V. B. Wigglesworth, M.A., B.Ch., M.D. } *Vice-Presidents.*

N. D. Riley, *Treasurer.*

O. W. Richards, M.A., D.Sc., *Secretary.*

F. J. Griffin, A.L.A., *Registrar.*

Other Members of Council.

H. M. Edelsten.
C. N. Hawkins.
B. M. Hobby, M.A., D.Phil.
Col. F. A. Labouchere.
Hugh Main, B.Sc.
Sir Guy A. K. Marshall, C.M.G., D.Sc., F.R.S.
A. M. Massee, D.Sc.
The Hon. Miriam Rothschild.
W. R. Thompson, Ph.D., D.Sc., F.R.S.
B. P. Uvarov, D.Sc.
A. Welti.

Finance and House Committee.

Francis Hemming, C.M.G., C.B.E. (Chairman).
Brig.-Gen. B. H. Cooke, C.M.G., C.B.E., D.S.O.
H. Willoughby Ellis, M.I.E.E.
G. Fox-Wilson.
R. W. Lloyd.
A. Welti.

Publication Committee.

W. R. Thompson, Ph.D., D.Sc., F.R.S. (Chairman).
M. Burr, D.Sc., F.G.S., A.R.S.M.
E. A. Cockayne, M.A., M.D., F.R.C.P.
B. M. Hobby, M.A., D.Phil.
A. M. Massee, D.Sc.
Hugh Scott, M.A., Sc.D.

Library Committee.

B. P. Uvarov, D.Sc. (Chairman).
R. B. Benson, M.A.
K. G. Blair, D.Sc.
H. M. Edelsten.
R. W. Lloyd.
W. H. T. Tams.

Committee for the Protection of British Insects.

W. G. Sheldon (Chairman).
Capt. E. Bagwell-Purefoy.
C. L. Collenette.
W. J. Dow.
J. C. F. Fryer, O.B.E., M.A.
Col. F. A. Labouchere.
N. D. Riley.
H. M. Edelsten (Secretary).

The Executive Officers of the Society are *ex-officio* members of all Committees.

DELEGATES OF THE SOCIETY TO:

1. **British National Committee for Biology** (Royal Society).
   Sir Guy A. K. Marshall, C.M.G., D.Sc., F.R.S., appointed 1939.
   Dr. Karl Jordan, F.R.S., appointed 1936.
2. **Conference of Delegates of Corresponding Societies of the British Association for the Advancement of Science.**
   Mr. H. B. Cott, M.A., appointed 1939.
3. **International Congress of Entomology** (Berlin 1938).
   J. C. F. Fryer, O.B.E., M.A. *Francis Hemming, C.M.G., C.B.E.*
   A. D. Imms, M.A., Sc.D., F.R.S.
4. **Local Committee of Management of Wicken Fen.**
   Mr. H. M. Edelsten. *Mr. E. C. Bedwell.*
   [Delegates nominated by Committee for the Protection of British Insects.]
5. **National Trust for Places of Historic Interest or Natural Beauty.**
   Mr. W. G. Sheldon, appointed 1922.
6. **New Forest Association.**
   Mr. W. Fassnidge, appointed 1934.
7. **Royal Meteorological Society. Phenological Committee.**
   Dr. C. B. Williams, appointed 1937.

A NOTE ON THE VENATION OF *PENTATHEMIS MEMBRANULATA* KARSCH (ODONATA)

By Lt.-Col. F. C. Fraser, I.M.S. Retd., F.R.E.S.

In the original description of *Pentathemis membranulata* by Karsch, 1890, he gave a wrong interpretation of the formation of the discoidal triangle of the fore-wings. Needham, 1903, corrected this error, pointing out that the cell was four- and not five-sided as Karsch had supposed. Needham compared the

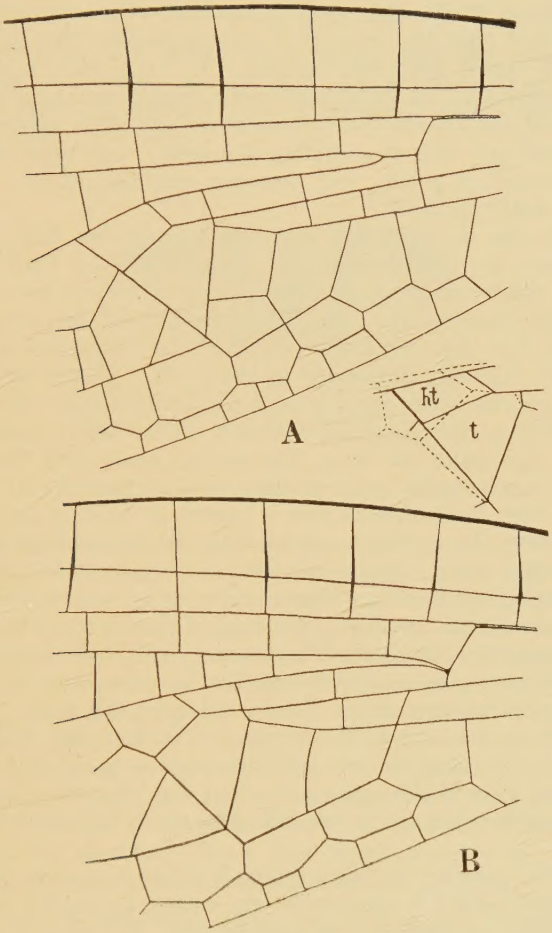


Fig. 1.—Base of fore-wings of *Pentathemis membranulata* Karsch showing region of arculus and discoidal triangle. *A*, Right fore-wing; *B*, Left fore-wing. Inset is shown a camera lucida study of the right and left discoidal triangles superimposed. Dotted lines indicate the left triangle. *ht.* hypertriangle, *t.* discoidal triangle.

formation of this cell to that which exists in the hind-wings of *Hemicordulia* and *Neocordulia*; it should be pointed out, however, that the condition of the descent of the costal side of the cell more nearly resembles that found in *Merogomphus* and it is this character which gave the name to the latter genus. But in *Pentathemis*, it is a gross exaggeration of that condition, so that it seems more than doubtful if it really represents the normal one to be found in species of *membranulata*. Unfortunately this species is known only from the type

specimen, so that for a correct or probable interpretation one must fall back on comparisons with other species.

Tillyard, 1910, in discussing freak venation in the genus *Synthemis*, mentions the case of two specimens, one belonging to *S. leachii* Selys, the other to *S. cyanitincta* Tillyard, in which the formation of the discoidal triangle of the fore-wings is an exact reproduction of that found in *P. membranulata*, and goes on to suggest that the venation in this type-specimen is nothing more or less than a freak venation of the genus *Pentathemis*. The incidence of this freaking in genus *Synthemis* works out at 3%, so that it would not be an undue coincidence to find that the type of *P. membranulata* was such an example. I am inclined to agree with this opinion. In his closing remarks, he says: "Any entomologist who can get access to the *Pentathemis* type should carefully compare the right and left sides of this insect for any other indication of freaking or variation; and any lack of complete symmetry, especially in the right and left triangles, would go a long way towards establishing my contention that this insect is in reality a freak."

I have been able to carry out such an examination, although it was not entirely necessary, for the photographic figure given by Martin, 1906, of the right fore-wing clearly shows a condition of the arculus which can be nothing less than a gross abnormality. On comparing the left fore-wing with that of the right, I find that this conjecture is correct, for in the former the formation of the arculus is typically Corduliine in character. In the left fore-wing, the sectors of the arculus arise from a common point nearer the lower part of the arculus, and then curving gently upwards, immediately separate as in other Corduliines; in the right fore-wing, the sectors arise from the middle of the arculus and are confluent for some distance as a horizontal stalk before parting company. No such formation as this is known to exist in any living or fossil species of Odonata. It is unfortunate that Martin should have chosen to depict the deformed right wing, instead of the more normal left one. Needham, 1908, has unwittingly fallen into this trap, for in his key to the CORDULIINAE, he gives this horizontally stalked condition of the sectors of the arculus as a character for separating the genus *Pentathemis* from *Aeschnosoma*, not realising that he is employing a deformity for such! In examining the two wings for other indications of abnormalities, I have enlarged the discoidal triangles and superimposed them, when it is at once seen that they are differently shaped; moreover, the subtriangle in the left fore-wing is 2-celled and so probably abnormal, whilst that of the right is 3-celled and normal. Lastly there is an incomplete antenodal nervure in the subcostal space adjoining the nodus in the left hind-wing.

Regarding the position of this species, I consider that it comes nearest to genus *Aeschnosoma* and if it was not for the widely separated habitats, I would have no hesitation in placing it in that genus. The data given for *P. membranulata*, viz., "Somerset, Torres straits, Australia, 12.xii.81," is too explicit for there to be any mistake about the locality. *Aeschnosoma* is a purely S. American genus.

REFERENCES.

KARSCH, F., 1890, *Ent. Nachr.* **16**: 33.
KIRBY, W. F., 1890, *Cat. Odonata*: 184.
MARTIN, R., 1906, *Cat. Coll. Selys* **17**: 8, figs. 3 & 7.
NEEDHAM, J. G., 1903, *Proc. U.S. nat. Mus.* **26**: 718, footnote.
NEEDHAM, J. G., 1908, *Ann. ent. Soc. Amer.* **1**: 276, 280.
TILLYARD, R. J., 1910, *Proc. Linn. Soc. N.S. Wales* **35**: 321, pl. 6, figs. 11, 12.

cat. 6 sep.

OTITIDAE (DIPT.) OF THE ADMIRALTY ISLANDS

By John R. Malloch.

Communicated by Dr. O. W. Richards, F.R.E.S.

Rivellia Robineau-Desvoidy.

Rivellia marina sp. n. (fig. 1).

Female : A glossy bluish or greenish-black species, with the wings marked almost as in *ferruginea* Hendel, to which species it will run in Hendel's key to the species of the Indo-Malayan and Australian regions.[1] It is distinguished therefrom by the entirely black thorax, abdomen, femora, and tibiae.

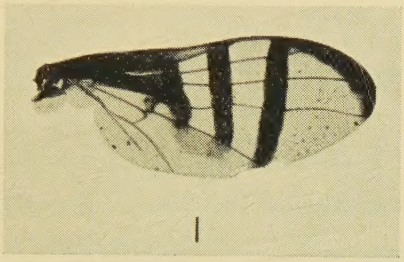


Fig. 1.—*Rivellia marina* sp. n., wing.

Head brownish-black, paler on the frontal orbits, face, and postocular orbits, the orbits rather densely white dusted; basal two antennal segments brownish-yellow; palpi fuscous. Frons about twice as long as wide, almost parallel-sided, the four vertical bristles much stronger and longer than the two pairs of supraorbitals; ocellars minute. Eye much higher than long; gena a little higher than width of third antennal segment, the latter over three times as long as its basal width, tapered apically, the apex narrowly rounded; arista very short haired. Thorax and scutellum rather evenly dusted, mesonotum not vittate. Humeral and both notopleural bristles strong; scutellum short and convex, the basal pair of bristles shorter than the apical pair, the disc with numerous erect dark hairs. Legs normal, black, the bases of all tarsi broadly brownish-yellow. Wing as fig. 1, the costal cell dark brown, apical costal streak connected with the preapical dark fascia. Halteres dark brown. Abdomen much more glossy than thorax, without any dust, the surface slightly wrinkled, all the hairs and bristles black. Length, 5·0 mm.

Admiralty Is. : Manus, type (Brit. Mus.) and one paratype, 10.ix.1932, No. D 151; one paratype (Brit. Mus.), topotypical, 16.iv.1932, No. D 75 (*J. L. Froggatt*).

Scholastes Loew.

There is but one species of this genus in the collection from the Admiralty Islands. I have already described this species in a manuscript dealing with the family in New Guinea, but the paper will not appear until some time after the present one so I give a brief diagnosis of the new species to establish the specific name.

[1] 1914, *Abh. zool.-bot. Ges. Wien*, **8** : 148.

Scholastes aitapensis sp. n.

Male and Female: Similar in general coloration and markings to *bipunctatus* Hendel, to which species it will run down in Hendel's key to the species of the genus. It differs in lacking the prescutellar pair of acrostichal bristles in both sexes, and in the female there are several long erect bristly hairs in a group on the apex of the central portion of the large quadrate abdominal tergite. Length, 7·0–8·5 mm.

Type, male, and a long series of paratypes, New Guinea: Aitape (*F. H. Taylor*); allotype (in Brit. Mus.) and 9 paratypes, Admiralty Island: Manus (*B. O. O'Connor*; *J. L. Froggatt*); and 2 paratypes, Guam (*O. Swezey*).

cat f. sep

TWO NEW SPECIES OF SAPROMYZIDAE FROM NEW GUINEA (DIPTERA)

By John R. Malloch.

Communicated by Dr. John Smart, F.R.E.S.

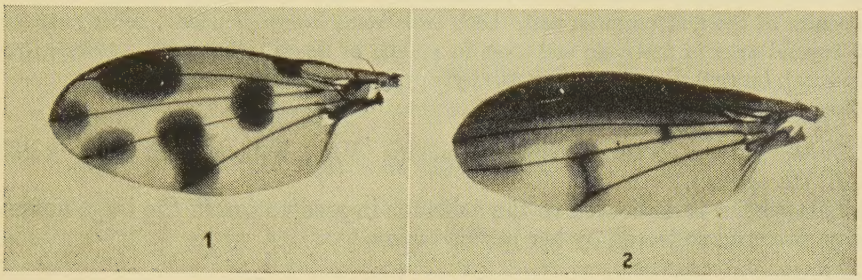
The two new species described below were sent to me with some other specimens some months ago and in order to return them named to the British Museum I am now publishing these descriptions and at the same time recording one old species from the same island.

Minettia sexmaculata sp. n.

Female.—A shiny testaceous yellow species with centre of frons with a black vitta, mesonotum with three broad black vittae, the two submedian extending over the sides of the scutellum, a black mark on upper edge of the mesopleura, the apices of all femora and tibiae black, all the abdominal tergites with their apices broadly blackened, and the wing yellowish hyaline, with six large blackish-brown spots. *Head* not wider than thorax, frons slightly over one-third of the head width, subquadrate, all the bristles strong, postverticals and ocellars the shortest, the latter slightly shorter than the postverticals. Antennae yellow, third segment slightly infuscated except at base. Aristae long, plumose. Face convex, slightly dusted. Eye higher than long, the lower half of posterior outline slightly emarginate. *Thorax* with three pairs of long dorsocentrals, the anterior pair just behind the suture, five pairs of long strong acrostichals, the anterior pair in front of suture, a much shorter pair in front of the latter and some short black hairs laterad of them, no hairs between the dorsocentral and acrostichal bristles behind the suture; intra-alar rather short; mesopleura and sternopleura each with one long bristle, a very short bristle in front of the latter; pteropleura bare; scutellum flattened, with four bristles and no discal hairs. *Legs* yellow, apices of all femora with a rather broad black ring, all tibiae with a much narrower black apical ring. Fore femur with no anteroventral comb, and with three strong posteroventral bristles, mid femur with one apical posterior bristle; all tibiae with a preapical dorsal bristle, the one on hind tibia very short. *Wing* as fig. 1. The short dense black costal setulae ending nearer to third than to second vein. *Abdomen* ovate, apical tergal bristles short.

Length, 6 mm.

Type, Dutch New Guinea: Mt. Cyclops, 4000 feet, 12.iii.1936 (*L. E. Cheesman*).



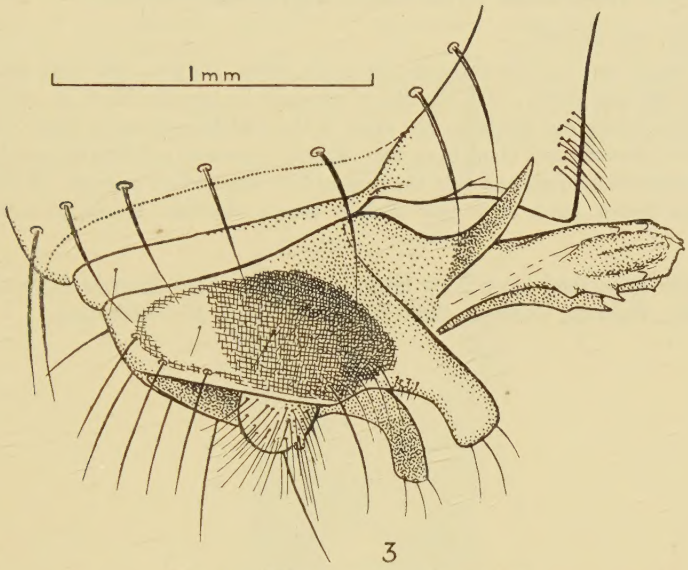


Fig. 1.—*Minettia sexmaculata*, wing.

Figs. 2–3.—2. *Homoneura cheesmanae*, wing; 3. male hypopygium from the side.

Homoneura cheesmanae sp. n.

Male.—A shiny brownish-yellow species, the frons pale brown, the thorax without dark markings, legs yellow, second to fourth tergites each with a brown apical transverse line, fifth and sixth tergites each with a large black transverse mark on each side, rather narrowly separated in centre, the sides of the basal portion of the hypopygium black. Frons almost one-third of the head width, subquadrate, with the usual bristles, the orbitals unequal in length, the anterior one the shorter, the inner vertical much longer than the upper orbital, ocellars subequal to anterior orbitals. Face higher than long, widened below. Antennae normal, aristae plumose, the longest hairs much longer than the width of the third antennal segment; palpi yellow. *Thorax* with the usual bristles, no acrostichals but the prescutellar pair; intradorsocentral hairs in at least ten irregular series, intra-alar undeveloped, sternopleura with one long and one very short bristle, pteropleura without hairs; scutellum flattened, with four bristles and no discal hairs. *Legs* yellow. Fore femur with distinct anteroventral apical comb and four posteroventral bristles, mid tibia with one apical posterior bristle, hind pair with no anteroventral bristles, all tibiae with a preapical dorsal

bristle. *Wing* brownish hyaline, with a broad dark brown costal border that extends to third vein, fading out beyond it until it reaches the level of middle of apical section of fourth vein where it spreads to that vein, covering apex of latter but leaving a subhyaline line in the centre of the first posterior cell; both cross veins brown clouded. Inner cross vein just beyond apex of first vein and close to middle of discal cell (fig. 2). *Abdomen* subcylindrical, tapered slightly to apex, the hypopygium as figure 3.

Length, 6·5 mm.

Type, DUTCH NEW GUINEA: Cyclops Mts., Sabron, 900 feet, v.1936 (*L. E. Cheesman*).

This species is dedicated to the collector in recognition of the large amount of fine material collected by her in this region.

Homoneura (*Homoneura*) *nigrifrons* (Kertesz).

1900, *Termeszet. Füz.* **23**: 265.

A glossy black species, with antennae brownish-yellow, the palpi similarly coloured, the thorax glossy fulvous yellow, with the disc of mesonotum broadly black on entire extent, the dark colour fading out laterally, the apex of the scutellum broadly black, postnotum fulvous yellow, mesosternum black in centre. Bristling normal, neither the pre-alar nor the intra-alar bristles developed, and only the prescutellar acrostichals present. Wings greyish hyaline, veins brown, outer cross vein slightly brown clouded. Knobs of halteres dark brown.

Originally described from New Guinea. One female, DUTCH NEW GUINEA: Cyclops Mts., Sabron, Camp 2, 2000 feet, v.1936 (*L. E. Cheesman*).

NEW SPECIES OF *APANTELES* (HYM. BRAC.).—1.

By D. S. Wilkinson, F.R.E.S.

(*Imperial Institute of Entomology.*)

Apanteles phaloniae sp. n.

♀. Black; front femora in large areas of the apical half, front tibiae wholly (save often for some extensive darkening), middle femora at extreme apex, middle and hind tibiae in basal fifth to third, front tibial spurs, and palpi (save for darkened basal segment), red testaceous; front tarsi strongly darkened; front femora below black almost throughout; tibial spurs of four posterior legs pale or even white; wings hyaline; setae colourless, save in about the apical fourth or third of the fore-wing, where they are coloured; costal veins in part red testaceous, in part strongly darkened; stigma and metacarp brown or even strongly brown; 1st abscissa of radial, transverse cubital, and 2nd abscissa of cubital, brown, the remaining veins entirely colourless; stigma with a cloud at base, this cloud commonly small and rarely if ever describable as large.

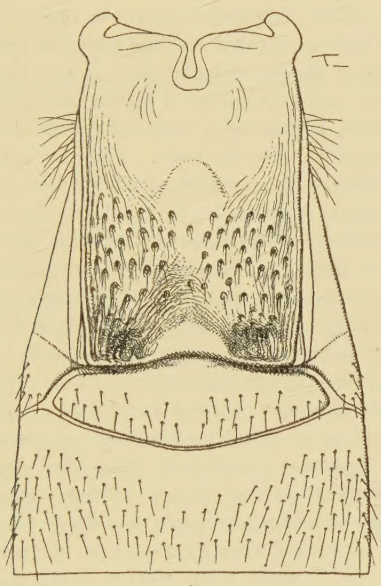


Fig. 1.—*Apanteles phaloniae* sp. n., basal tergites, ♀. × 80.

♂. Black; front femora in large areas in apical two-fifths, front tibiae extensively, middle tibiae commonly in basal fourth or fifth, red testaceous; front femora below black almost throughout; front tibiae extensively darkened; front tarsi strongly darkened; middle tibiae commonly entirely black; hind tibiae more usually entirely black, often with some indication of red testaceous colouring basally, occasionally red testaceous basally; palpi (save for darkened basal segment), and front tibial spurs, red testaceous or pale; tibial spurs of four posterior legs pale or even white; wings hyaline, and the setae white; costal

veins in part testaceous, in part darkened; stigma and metacarp brown or even strongly brown; 1st abscissa of radial, transverse cubital, and 2nd abscissa of cubital, brown, the remaining veins entirely colourless; stigma with a small cloud at base, this cloud commonly very small or even occasionally obsolete.

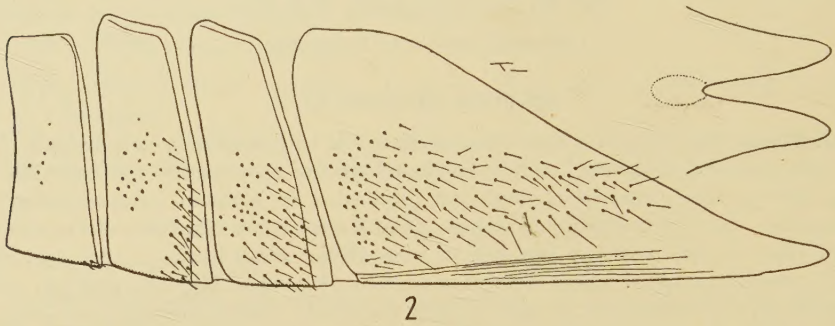


Fig. 2.—*Apanteles phaloniae* sp. n., apical ventrites, side view, ♀, × 54; and apex of hypopygium, opened out, dorsal view, further much enlarged, to show apical slit.

♀♂. *Head :* clypeus, face, frons, frontal orbits, and vertex, throughout with closely placed minute punctation; facial depressions nearer to apex of clypeus than to the eyes; posterior ocelli equidistant from each other and the eyes, but rather variable; flagellum of ♀ equal to combined length of thorax and abdomen, longer than twice the length of the thorax, of ♂ about equal to combined length of thorax and abdomen together with three times the length of the head, approaching three times the length of the thorax, about equal to three times the length of the abdomen. *Thorax :* mesonotum throughout with closely placed punctation (degree 3), narrowly across extreme apex entirely smooth; disc of scutellum minutely punctate (degrees 1 and 2), closely so along the sides, sparsely so medially; non-excavate area of lateral faces of scutellum reaching up half-way to base of scutellum; propodeon in basal half closely, even contiguously, punctate (degrees 2–3 in ♂, 3–4 in ♀) on each side of a narrow, often slightly elevated, more or less entirely smooth, median area, in apical half with a smooth, somewhat impressed areola delimited by various short carinulae rising from the median apical lunule, generally more weakly sculptured in ♂ than in ♀. *Wings :* metacarp longer than stigma. *Legs :* hind coxae basally above in ♀ with a large area strongly punctate (degrees 3 and 4), in ♂ not as a rule so extensively or strongly punctate here as in ♀, apically above and on outer faces in both sexes with minute (degree 1), widely separated punctation; hind tibial spurs equal, equal to or just shorter than the basal segment of the hind tarsus. *Abdomen* (figs. 1, 2) : 1st tergite basally excavate, medianly strongly tumescent in ♀ and weakly so in ♂, apically turned over, in apical half in ♀ with well separated strong punctation (degree 4), and the apical angles depressed and aciculated, in ♂ much more weakly sculptured; 2nd tergite minutely punctate (degree 1); 3rd tergite smooth broadly across base and in a large median basal area, more narrowly so across apex, otherwise with minute punctation regularly throughout; succeeding tergites minutely punctate; 2nd–5th ventrites of ♀ with median longitudinal suture; hypopygium of ♀ broadly membranous throughout the median line, and its apex membranously acute; ovipositor sheaths longer than hind tarsus, rather longer than combined length of hind tibia together with the two basal segments of the hind tarsus, about equal to combined length of hind femur and hind tibia, the ovipositor elongate, longer than twice the length of the hind tarsus, rather shorter than combined length of femur, tibia, and tarsus, of the hind leg.

Length : ♀, 2·75–3·0 mm., ♂ 2·0–2·75 mm.

Described from the following material :—British Museum : Lyle Collection, Gog Magogs, 1 ♀, ser. no. 3150, 3.vi.1917, 1 ♀, ser. no. 3286, 15.vii.1917 (*G. T. Lyle*), det. Lyle as *albipennis* Nees. D. S. Wilkinson's Collection : Hoo, Kent, 18 ♀♀ (one the *type*), 14 ♂♂, coll. ix.1937, em. 15.vi.1938 (*L. T. Ford*), 43 ♀♀, 25 ♂♂, coll. 6.x.1938, em. 18.vi.1939 (*D. S. Wilkinson* & *R. L. E. Ford*).

Type deposited in the British Museum.

Host. With the exception of Lyle's two specimens, which were swept, all the material from which I have described this species was bred as a solitary parasite from the Tortricid, *Phalonia smeathmanniana* F., feeding on the seeds and dead blossoms of Yarrow, *Achillea millefolium* L.

Cocoons unknown.

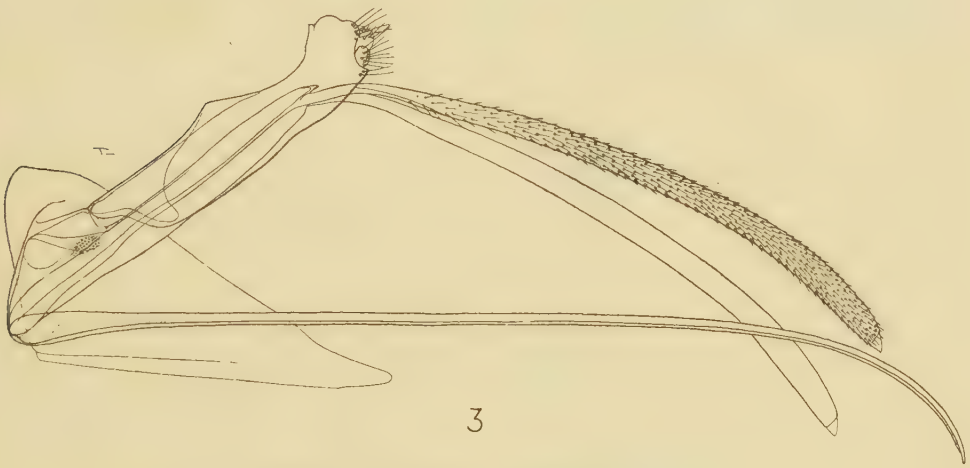


Fig. 3.—*Apanteles phaloniae* sp. n., genitalia, side view, ♀. × 40.

Commentary. In Marshall's key (1888) this species runs apparently only to *albipennis* Nees, but will agree neither with Marshall's description of *albipennis* nor with the original description by Nees, who says : " terebra longitude fere abdominis." In Muesebeck's key (1920) of the Nearctic species, which must be considered, *phaloniae* will run in his first section (couplets 2–51) only, so far as I can determine, to couplet 47, but will not compare with the two species therein; and in his second section (couplets 52 *et seq.*) it will not run beyond couplet 112. In my own key (1932, *Trans. ent. Soc. Lond.* **80**, and as subsequently emended and enlarged) it runs in Group U to couplet 120b, which should be altered as follows :—

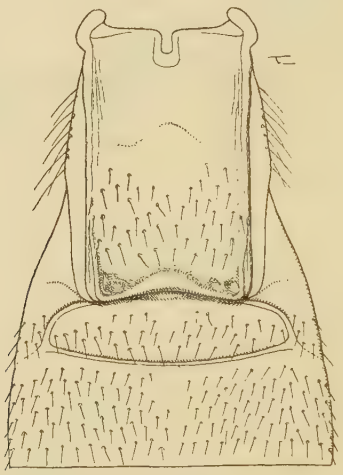
120b. Metacarp equal in length to stigma; distance from apex of metacarp to apex of obsolete apical abscissa of radial longer than 1st abscissa of radial; Europe . . . . . *sicarius* Marsh.
Metacarp longer than stigma; distance from apex of metacarp to apex of obsolete apical abscissa of radial shorter than 1st abscissa of radial . . . . . 120c.

120c. Wings infumated evenly throughout, and the setae coloured; four anterior coxae largely red testaceous; New Zealand *carposinae* Wilkn.
Wings hyaline, and the setae largely colourless; four anterior coxae black; England . . . . . *phaloniae* Wilkn.

Apanteles gracilariae sp. n.

Apanteles fuliginosus Wesmael, Marshall, 1885, *Trans. ent. Soc. Lond.*, **1885** : 208–209; 1888, *Spécies Hymén. d'Eur.*, **4** : 468–469. Bignell, 1901, *Trans. Devon. Ass. Adv. Sci.*, **33** : 674. Butterfield & Lyle, 1929, *Naturalist*, **1929** : 306.

♀♂. Black; the legs in part testaceous as described below, but all the coxae, trochanters, and trochantines, together with the hind femora always entirely black, the middle femora also always black or at the most with the extreme apex touched with red, and the hind tarsi always darkened or black; the front femora darkened or black at least basally, more usually red testaceous apically, occasionally red testaceous only at extreme apex, very occasionally even entirely black, commonly black in the basal half with the apical half red testaceous with black above and below, the ♂ always more darkly coloured; the front tibiae in ♀ more usually entirely red testaceous, occasionally however with what is more usual in the ♂ namely red testaceous save for the apical three-fourths of the anterior



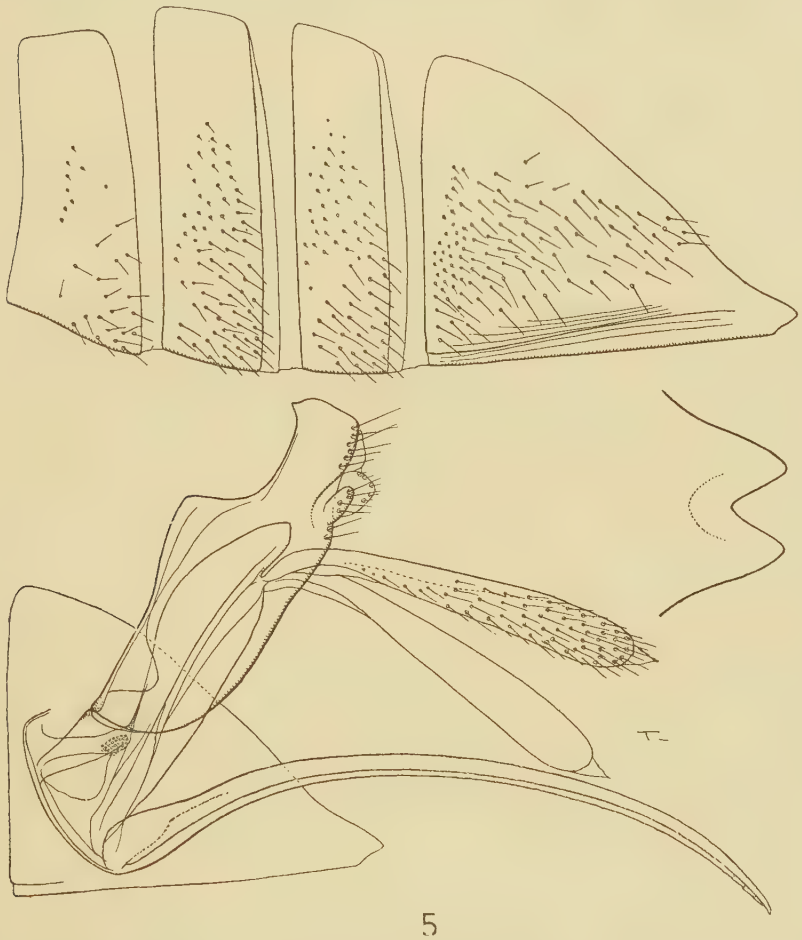
4

Fig. 4.—*Apanteles gracilariae* sp. n., basal tergites, ♀. × 80.

margin which are black or strongly darkened; the front and middle tarsi red testaceous with the claws and the 5th segment strongly darkened to black, occasionally (but never in ♀) darkened throughout with the claws and 5th segment black; the middle tibiae very variable, either red testaceous basally and darkened or black apically, or red testaceous at extreme base and otherwise darkened, or darkened only at extreme apex, or red testaceous with the apical three-fourths of the anterior margin darkened or black; the hind tibiae also variable, being strongly darkened or black with either the basal half, fourth, or extreme base, red testaceous, palpi and tibial spurs pale; costal veins apically, stigma, and metacarp, brown, the 1st abscissa of radial, transverse cubital, and 2nd abscissa of cubital, brown or pale brown, the remaining veins pale to colourless; stigma uniformly opaque.

♀♂. *Head :* face and clypeus with regular, minute punctation (degree 1); facial depressions nearer to apex of clypeus than to the eyes; frons and vertex with well separated, exceedingly minute punctation; posterior ocelli about equidistant from each other and the eyes, or rather nearer to the eyes; flagellum of ♀ equal in length to or rather shorter than combined length of thorax and abdomen, of ♂ longer than combined length of thorax and abdomen together with twice the length of the head. *Thorax :* mesonotum regularly,

minutely punctate, pruinose in certain lights, entirely smooth in a triangular area whose base is the posterior margin of the mesonotum, this area in the ♂ commonly large; disc of scutellum minutely punctate, sparsely so medially; non-excavate area of lateral faces of scutellum in both sexes clearly reaching up beyond half-way to base of scutellum, even sometimes clearly beyond three-fourths the way; propodeon in basal half (save medially) with minute, shallow punctation, at extreme apex medially and more or less throughout



5

FIG. 5.—*Apanteles gracilariae* sp. n., apical ventrites and, below, genitalia, side view, ♀, × 80; and apex of hypopygium, opened out, dorsal view, further much enlarged, to show apical slit.

the posterior angles with carination or rugosity, otherwise largely smooth. *Wings:* metacarp longer than stigma. *Legs:* hind coxae basally above in ♀ with closely placed, strong striato-punctation (degree 3 or even 4), in ♂ more usually noticeably more weakly sculptured here than in ♀, apically above in both sexes minutely punctate and on outer faces with widely separated minute punctation; hind tibial spurs equal, half the length of the basal segment of the hind tarsus. *Abdomen* (figs. 4, 5): 1st tergite basally excavate, medianly tumescent, apically turned over, throughout smooth and shining save for some exceedingly minute, widely separated punctures in the apical two-fifths, the median apical

lunule obsolete to wanting; 2nd tergite minutely punctate in apical half or two-thirds (degree 1); 3rd tergite smooth very narrowly across base and in a small median basal triangle, otherwise with minute punctation regularly throughout; succeeding tergites minutely punctate; 2nd–5th ventrites of ♀ with median longitudinal suture; hypopygium of ♀ broadly membranous throughout the median line, and its apex membranously acute; ovipositor sheaths equal in length to the hind femur, just shorter than combined length of the three basal segments of the hind tarsus, the ovipositor longer than the hind tarsus, equal to the combined length of the hind tibia together with the basal segment of the hind tarsus.

Length : 2·5–3·0 mm.

Described from the following material :—British Museum : Marshall Collection, 1 ♀, det. as *fuliginosus* Wesm., Bignell reg. no. 2006, in Bignell register dated 13.viii.1884; Lyle Collection, Cambridge, 1 ♀, ser. no. 3159, 8.vi.1917, 1 ♀, ser. no. 3337, 1.viii.1917, 1 ♀, 1 ♂, ser. nos. 3690, 3691, 28.vii.1918, 1 ♂, ser. no. 3722, 6.vi.1918, 1 ♀, ser. no. 3745, 8.viii.1918, 1 ♀, 1 ♂, ser. nos. 3918, 3919, 29.v.1919, Shibden, Halifax, 2 ♀♀, ser. nos. 4970, 4971, 6.x.1925 (*G. T. Lyle*), all det. Lyle as *fuliginosus* Wesm. Plymouth Museum : Bignell Collection, a card of six (4 ♀♀, 2 ♂♂), reg. no. 1875, 16.vii.1884, det. as *fuliginosus* Wesm., the register recording the material to have been " sent by Barrett from London "; a card of five (2 ♀♀, 3 ♂♂). Norwich Castle Museum : Bridgman Collection, two cards [1] of three each (3 ♀♀; 2 ♀♀, 1 ♂), ser. no. 749, in register det. Bignell as *fuliginosus* Wesm. Essex Field Club : Fitch Collection, a card of five (3 ♀♀, 2 ♂♂), Bignell reg. no. 1875 (vide coll. Bignell, above), det. as *fuliginosus* Wesm. Ministry of Agriculture, Harpenden : Harpenden, Herts, 1 ♀, 2 ♂♂, vii.1933 (*C.T.G.*). Oxford University Museum : Headington, Oxford, 1 ♀, 1 ♂, em. 5–22.viii.1916, ser. nos. 1918/786–787 (*H. Britten*), Southfield Road, Oxford, 3 ♀♀, 1 ♂, em. 31.vii.1916, ser. nos. 1918/1499–1502 (*A. H. Hamm*), all det. Lyle as ? *impurus* Nees. Manchester University Museum : York, 1 ♀, 24.vii.1930 (*W. G. Clutten*). Naturhistorisches Museum, Wien : Böheimkirchen, Austria Inf., 2 ♂♂,[2] 1920 (*Dr. Fahringer*), det. as *difficilis* Nees, 1 ♂, 1910 (*Dr. Fahringer*), det. as *obscurus* Nees. A. C. W. Wagner's Collection : Hamburg, 1 ♀, ser. no. 231, det. Schmiedeknecht as *fuliginosus* Wesm. D. S. Wilkinson's Collection : Somerset, Yeovil, St. Chads, 8 ♀♀ (one the *type*), 7 ♂♂, coll. 22.vi.1937, em. 3.vii.1937, 3 ♀♀, 1 ♂, 22.vi.1937, em. 3.vii.1937 (*D. S. Wilkinson*); Harpenden, Herts, 9 ♀♀, 3 ♂♂, coll. 21.vi.1937, em. 2.vii.1937, Bexley, Kent, 11 ♀♀, 12 ♂♂, pup. 21.vi.1937, em. 28.vi.1937 (*R. L. E. Ford*).

Type deposited in the British Museum.

Host. The single female in Marshall's collection is recorded by Bignell in his register to have been bred from the Tineid *Coriscium*, now *Gracilaria*, *cuculipennella* Hübn. On the other hand, the Bignell material numbered 1875, namely the card of six in his own collection and the card of five in Fitch's collection, is recorded by Bignell from *Gracilaria syringella* F. From this latter host is recorded all the remainder of the material before me, with the exception of Lyle's material with serial numbers 3159, 3918, 3919, Bignell's card of five, and Clutten's single female, which is without host record. It is also of interest, perhaps, to note that Lyle's single female no. 3337, the three specimens from Harpenden, and the series of fifteen from Yeovil, are further recorded to have been bred from the host feeding on lilac, *Syringa vulgaris* L., the series of four

[1] From lettering beneath clearly once one and the same card.
[2] One of these males is labelled ♂, and the other, ♀.

from Yeovil from the host feeding on privet, *Ligustrum vulgare* L., Ford's series from Harpenden from the host on lilac and privet, and the Oxford University material from the host on ash, *Fraxinus excelsior* L. Finally, Clutten's single female is labelled "Willow Herb," namely a species of *Epilobium*.

Cocoons solitary, white, papyraceous.

Commentary. This species was considered by Marshall to be *fuliginosus* Wesm., and so referred to by him. It is not *fuliginosus*, however, which is very obviously distinct and which is known to me from Wesmael's type; nor is it referable, I am convinced, to any other described palaearctic species, by far the greater majority of the types of which also are known to me. In Muesebeck's key (1920) of the nearctic species, which must be considered, *gracilariae* will not run beyond couplet 9 in his first section (couplets 2–51), and in his second section (couplets 52 *et seq.*) it can run only to *femur-nigrum* Prov., which is altogether different. In my own key (1932, *Trans. ent. Soc. Lond.* **80**, and as subsequently emended and enlarged) it runs in Group U to couplet 122, which should be altered as follows :—

122. Stigma hyaline, with red testaceous border; India . *leptothecus* Cam.
Stigma uniformly opaque; Europe . . . *gracilariae* Wilkn.

It will be noted that *Apanteles sicarius* Marsh. is now omitted at this point. I believe at the moment that it was incorrectly placed here. The species is still included in the key nevertheless—see couplet 120b.

Book Notice.

Primitive insects of South Australia. By H. Womersley. (Handbook of the Flora and Fauna of South Australia.) pp. 322, 82 figs., 1 pl. col. 8vo. Adelaide, 1939. Price 7*s.* 6*d.*

This well-produced book is concerned with the silverfish, springtails and their allies; that is to say, with the orders Thysanura, Diplura, Collembola and Protura, on which Mr. Womersley is well known as an authority.

The book is fully illustrated and supplied with many keys for identification. Each Australian species is dealt with individually. In addition to the systematic part of the book, chapters are included to deal with the zoogeographical relationship of the Australian fauna; table of distribution; economic importance; lists of injurious species; hints on collecting and preserving; glossary; bibliography and an index. In an "addenda et corrigenda" at the end, 2 new genera, 3 new species, and a variety are described, and in the main body of the work 2 subfamilies and a genus are erected and 10 species and a variety described.

A REVISION OF THE GENUS *BUFONIDES* BOLIVAR (ORTHOPTERA, TETRIGIDAE)

By H. E. Hinton, Ph.D., F.R.E.S.

(*Department of Entomology, British Museum (Nat. Hist.).*)

While incorporating the accessions of Tetrigidae recently determined by Dr. K. Günther, it was found that the material said by him to be *Bufonides antennatus* Bol. obviously included more than one species : and this, in addition to the fact that I have had an opportunity of examining the type, led to the present revision.

All drawings were made by me with the aid of a camera lucida. Lines next to figures refer to a length of 0·20 mm.

My best thanks are due to Dr. B. P. Uvarov for his kindly criticisms during the course of this work, and to Dr. F. Capra for the loan of the type of *Bufonides antennatus* Bol.

Bufonides Bolivar.

1898, *Bufonides* Bolivar, *Ann. Mus. Stor. nat. Genova*, (2) **39** : 67.
1906, *Bufonides* Hancock, *Gen. Ins.*, **48** : 8.
1938, *Bufonides* Günther, *Mitt. zool. Mus. Berlin*, (2) **23** : 309.

Body strongly convex, about twice as long as broad. Dorsal surface, femora, and part of ventral surface granulate. *Head* between eyes about as broad as eye; with juxta-ocular margins between eyes feebly elevated; posterior frontal costa with carinae strongly compresso-elevated, widely separated, parallel except between eyes where they converge and meet, and not extending beyond anterior ocellus; anterior frontal costa extending from median ocellus half way to clypeus where it divides and forms a rough equilateral triangle with fronto-clypeal suture as base. Antennae long (fig. 33), 22-segmented, regularly filiform, separated at base and from eyes by a distance equal to two-thirds of diameter of eye. *Pronotum* with median cephalic margin of disk acutely to obtusely (seen from top) and feebly to very strongly produced over occiput; median carina evident throughout, but on anterior two-fifths sometimes moderately strongly elevated; apex of pronotum deeply and triangularly emarginate and nearly extending to apex of hind femora; posterior sides of lateral lobes straight and not at all excised posteriorly; surface with numerous granules and punctures and usually also, particularly in females, with large gibbosities. *Elytra* and wings wanting. *Prosternum* of males with a large gibbosity on middle anterior margin so that when viewed from side or ventrally middle margin appears strongly produced (fig. 29); prosternum of females with anterior margin broadly and deeply emarginate and with bottom of emargination feebly bisinuate (fig. 30). Metasternum of males posteriorly at middle with a large, polished, very conspicuous gibbosity (fig. 27); females without gibbosity and homologous portion only feebly convex and similar in sculpture to surrounding area. *Abdomen* of males with proximal lobe of ninth sternum strongly inflated and distal lobe (subgenital plate) with two high, conical tubercles posteriorly (figs. 7–8); pallial valve with lateral margin simple or elevated into a conspicuous, heavily sclerotised ridge. Females with dorsal and ventral valves of ovipositor laterally compressed, feebly sinuate, and unarmed. *Legs* with front tibiae sulcate above; front tarsi with second segment slightly longer than first. Posterior femora broad, rugae oblique, surface granulate, femoral and genicular teeth obtuse to feebly acute; posterior tibiae with four to six teeth on inner and outer sides; posterior tarsi with third segment as long as first, and pulvilli moderately projecting.

Genotype : Bufonides antennatus Bolivar 1898.

This genus may be distinguished from all others in the family by having the posterior sides of the lateral angles of the prothorax straight and not at all excised. Because of this unusual character a new section, Bufonidae, of the TETRIGIDAE was erected by Hancock (1906) to contain it. *Bufonides* is known only from New Guinea.

A key to the three species before me is as follows :

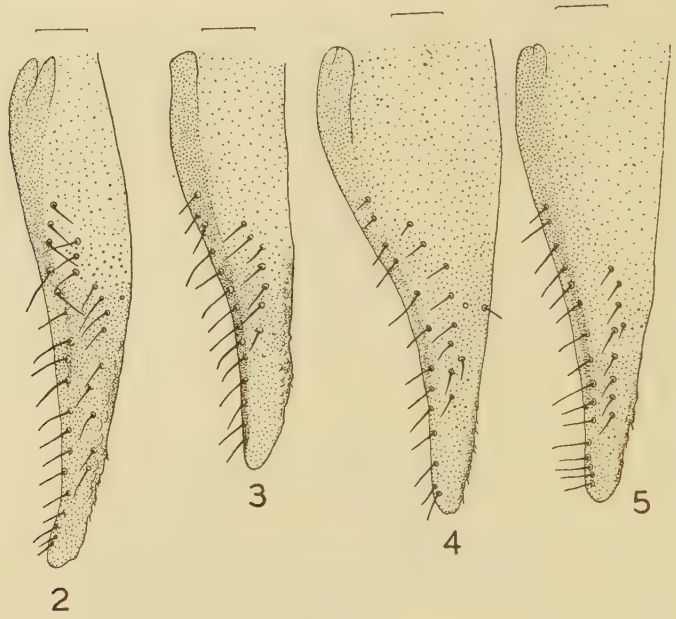
1. Front of pronotum projecting above occiput for a distance equal at least to diameter of eye (fig. 1). Front femora without tubercles on inner face and outer face with only an occasional tubercle . . . . *B. sellatus* sp. n.
   Front of pronotum projecting above occiput for a distance equal to much less than diameter of eye. Front femora with numerous tubercles on inner and outer faces . . . . . 2.
2. Front of pronotum moderately feebly projecting above occiput (figs. 6 and 12). Females with pronotal gibbosities on posterior three-fifths nearly as broad as eyes and usually separated by much less than a diameter. Males with a number of large gibbosities on posterior discal part of pronotum (fig. 6). Lateral margins of pallial valve simple (fig. 7); anterior process of phallic organ with dorsal and ventral projections equal in length (fig. 24) . . . . . *B. antennatus* Bolivar.
   Front of pronotum only very feebly projecting above occiput (figs. 19 and 26). Females with pronotal gibbosities on posterior three-fifths usually less than half as broad as eyes and generally separated by one to two or more diameters. Males without distinct gibbosities on posterior discal part of pronotum (fig. 26). Lateral margin of pallial valve with a conspicuous, heavily sclerotised ridge (fig. 20); anterior process of phallic organ with dorsal projection only two-thirds as long as ventral
   B. uvarovi sp. n.

FIG. 1.—*Bufonides sellatus* sp. n.

Bufonides sellatus sp. n. (figs. 1–2, 14).

Female : Length from posterior to anterior margin of pronotum, 12·0 mm.; breadth at broadest point, which is across anterior angles of pronotum, 6·5 mm. General form as shown in fig. 1. *Head* on vertex on each side near middle of eye with a high, oblique carina about 0·35 mm. long and behind this carina with a moderately deep transverse impression; least breadth between eyes less than horizontal diameter of eye (0·85 mm.: 0·99 mm.); facial scutellum with greatest breadth, which is between antennal bases, equal

to length of basal antennal segment (0·43 mm.); lateral facial carinae prominent; surface of head microscopically asperate throughout and with round granules which vary in breadth from 0·02 mm. to 0·07 mm. and are usually separated by one to six diameters, though on middle of head behind facial scutellum they are absent. Eyes prominent, with vertical diameter greater than horizontal (1·07 mm. : 0·85 mm.). *Pronotum* with median anterior margin, as seen from above, acutely produced over occiput for a distance of 0·99 mm. so that apex is level with highest point of frontal costa. General form as shown in fig. 1. Surface very densely and finely asperate throughout and, particularly on posterior three-fifths of dorsum, with numerous gibbosities as broad to one-fourth as broad as eyes and on lateral middle region confluent; with numerous granules about 0·09 mm. broad which give rise on their posterior margin to a very fine seta half as long as its respective granule;



Figs. 2–5.—2. *Bufonides sellatus* sp. n. Inner view of ventral valve of ovipositor. 3. Same of *B. uvarovi* sp. n. 4. Same of *B. antennatus* Bol. from Fly River. 5. Same of *B. antennatus* from Mailu.

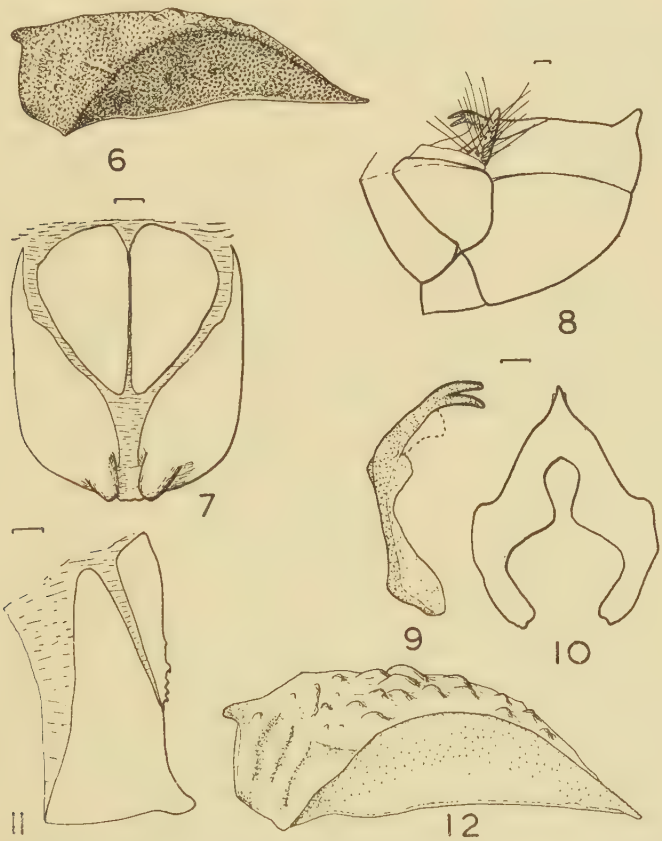
granules contiguous to separated by four diameters on gibbosities and sublateral margin; surface also with punctures slightly coarser than granules and confluent to separated by one diameter; surface of vertical lateral region rarely granulate and with punctures slightly shallower and finer than those of dorsum and confluent to seldom separated by as much as one diameter. *Legs* with dorsal and ventral margins of front femora entire; outer face of front femora with two longitudinal, feebly developed, and subparallel carinae; inner face without tubercles and outer face with only an occasional polished tubercle. Middle femora with dorsal margin entire and ventral with one small subapical and two large subbasal obtuse teeth (fig. 1); dorsal and ventral margins as well as outer face with only an occasional tubercle; outer face with two prominent, subparallel, longitudinal carinae. Hind femora 7·5 mm. long, shape as shown in fig. 1, and tops of oblique and other ridges set with granules which are slightly finer than those of sublateral pronotal margin and are confluent to separated by one diameter. *Ovipositor* as shown in figs. 2 and 14.

Male : Unknown.

Type: Female in collection of British Museum (Nat. Hist.). Dutch New Guinea: Humbolt Bay Dist., Puksuam Dist., West of Tami River, vi.1937 (*W. Stüber*).

Paratype: One female with same data as above.

Comparative notes: This species may be easily distinguished from *B. antennatus* Bol. as follows: (1) the median anterior margin of the pronotum is very strongly produced above occiput so that its apex is level with highest point of frontal costa, whereas in *antennatus* the margin is only moderately strongly produced over occiput and its apex is only on the same plane as the base of the frontal costa; (2) the anterior dorsal profile of the pronotum is nearly straight, whereas in *antennatus* the anterior fourth is strongly declivous (*cf.* figs. 1 and 12); (3) the posterior half of the pronotum is feebly sloping



Figs. 6–12.—*Bufonides antennatus* Bol. 6. Left lateral view of male pronotum. 7. Dorsal view of subgenital plate and pallial valve. 8. Left lateral view of posterior abdominal segments of male. 9. Right lateral view of phallic organ. 10. Dorsal view of phallic organ. 11. Left lateral view of subgenital plate and pallial valve. 12. Left lateral view of female pronotum.

behind, whereas in *antennatus* it is very strongly sloping behind; (4) the inner face of the front femora is without small polished tubercles and the outer face has only an occasional one, whereas in *antennatus* there are numerous

round to oblong highly polished tubercles on both faces; (5) middle femora with two large teeth on ventral margin and ventral and dorsal margins as well as outer face with only an occasional polished tubercle, whereas in *antennatus* there are here no comparable teeth on the ventral margin and both dorsal and ventral margins are very densely set with oblong, polished tubercles, while outer face is also densely set with tubercles which are for the most part oval or nearly round; and (6) there is a considerable difference between the chaetotaxy of the inner sides of ventral valves of ovipositor (*cf.* fig. 2 with 4 and 5).

From the same locality as the type there is a female nymph which appears to be in its last stage. This is probably the nymph of *B. sellatus*, and it may be distinguished from the nymphs of both *B. antennatus* and *B. uvarovi* sp. n. by the very strongly produced anterior margin of the pronotum.

Bufonides antennatus Bolivar (figs. 4–12, 25).

1898, *Bufonides antennatus* Bolivar, *Ann. Mus. Stor. nat. Genova*, (2) **39** : 68.
1906, *Bufonides antennatus* Hancock, *Gen. Ins.*, **48** : 8, fig. 4.
1938, *Bufonides antennatus* Günther, *Nova Guinea* (n.s.) **2** : 4.

The male type and a female paratype of this species are before me, and a re-description is as follows :

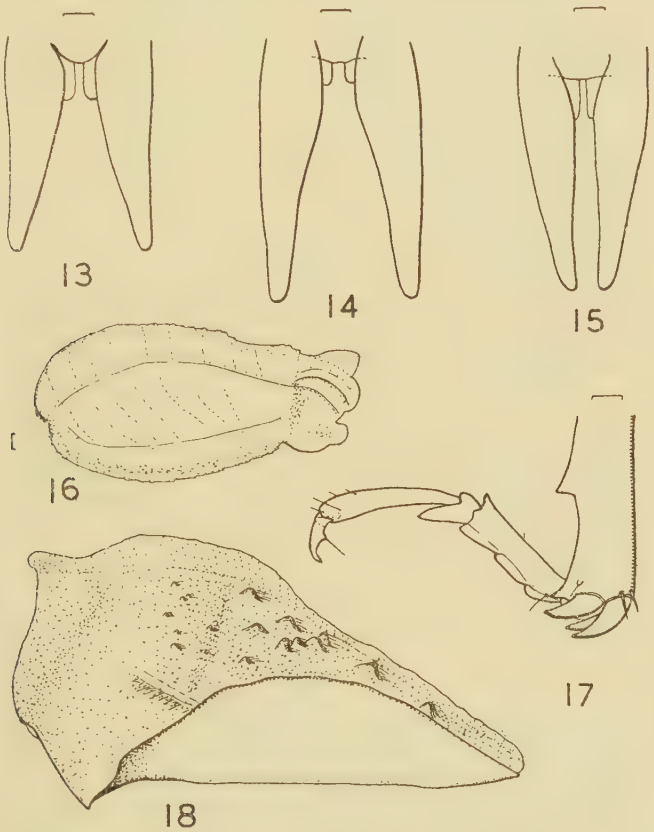
Female : Length from posterior to anterior apices of pronotum, 10·5 mm.; breadth at broadest point, which is across anterior angles of pronotum, 6·0 mm. General form as shown in fig. 12. *Head* on vertex on each side near middle of eye with high tuberculate carina about 0·42 mm. long and subparallel to inner margin of eye, behind carina on each side with a moderately deep and broad transverse impression; least breadth between eyes less than horizontal diameter of eye (0·78 mm. : 0·79 mm.); facial scutellum with greatest breadth, which is between antennal bases, equal to length of basal antennal segment (0·35 mm.); lateral facial carinae prominent; surface of head microscopically asperate throughout and with round to oval granules which vary in breadth from 0·04 mm. to 0·09 mm. and are usually separated by less than one to six diameters, though on some areas altogether absent. Eyes prominent, with vertical diameter greater than horizontal (0·85 mm. : 0·79 mm.). *Pronotum* with median anterior margin, as seen from above, acutely produced over occiput for a distance of 0·42 mm. so that apex is only level with general plane of fastigium. General form as shown in fig. 12. Surface throughout very densely and finely asperate and, particularly on posterior three-fifths of dorsum, with numerous oval gibbosities as broad to half as broad as eyes and on lateral middle region confluent, elsewhere being separated by half to two diameters; with numerous granules about 0·07 mm. to 0·14 mm. broad, each giving rise on posterior margin to fine seta a fourth to half as long as its respective granule; on gibbosities and sublateral arcuate margin granules separated by a half to four diameters, seldom present elsewhere; surface also with moderately deep punctures about size of larger granules and confluent to separated by one diameter; surface of vertical lateral region with a few sparse granules and similarly but slightly more densely punctate than dorsum. *Legs* with dorsal and ventral margins of front femora entire; outer face of front femora with two longitudinal, very irregularly developed, and subparallel carinae; inner and outer face with numerous polished granules like those of head, dorsal margin very densely set with tubercles about twice as long as broad. Middle femora with dorsal and ventral margins entire; outer face at base with two and elsewhere with one longitudinal ridge, surface with numerous large and polished tubercles like those of dorsum; ventral and dorsal margin very densely set with tubercles which are sometimes four times as long as broad. Hind femora 7·1 mm. long, in shape like that figured for *sellatus* (fig. 1); tops of oblique and other ridges granulate like gibbosities of pronotum. *Ovipositor* as shown in figs. 4 and 15.

Male : Smaller, length of pronotum 9·5 mm. and greatest breadth 5·0 mm.; paler, with

apical fifth and antero-lateral sides of pronotum much paler than elsewhere, being here the colour of head; gibbosities on pronotum less numerous and only feebly elevated; pro-, meso-, and metasternum differing from that of female as shown in figs. 27–30 for *uvarovi* sp. n.; ninth sternum very broadly dilated (fig. 8). *Genitalia* and associated sclerites as shown in figs. 7–11 and 24.

Type : ♂, in the collection of the Museo Civico di Storia Naturale, Genoa. New Guinea : Fly River, 1876–1877 (*L. M. D'Albertis*).

Paratype : ♀, same data as type.



Figs. 13–18.—13. Dorsal view of dorsal valves of ovipositor of *B. uvarovi* sp. n. 14. Same of *B. sellatus* sp. n. 15. Same of *B. antennatus* Bol. 16. Left lateral view of left femora of nymph of *B. uvarovi* sp. n. 17. Hind tarsus of *B. uvarovi* sp. n. 18. Left lateral view of female last stage nymph of *B. uvarovi* sp. n.

A specimen collected in British New Guinea : Mailu, vii.1895 (*Anthony*) is slightly larger and proportionally slightly narrower. The ventral margin of the middle femora has two teeth which are nearly as well developed as those of *sellatus*, and the tubercles here are not usually as long as those of the female paratype of *antennatus*. The inner side of the ventral valve of the ovipositor has a slightly different chaetotaxy (fig. 5). However, it is felt that these differences may prove to be individual ones when a longer series is examined.

Before me is a single nymph from Papua : Mt. Tafa, 8500 ft., iii.1934 (*L. E. Cheesman*). This was labelled as a nymph of *antennatus* by K. Günther, and in this case his determination appears to be correct.

Bufonides uvarovi sp. n. (figs. 3, 13, 16–23, 25–34).

Female : Length from posterior to anterior apices of pronotum, 8·5 mm.; breadth at broadest point, which is across anterior angles of pronotum, 5·0 mm. General form as

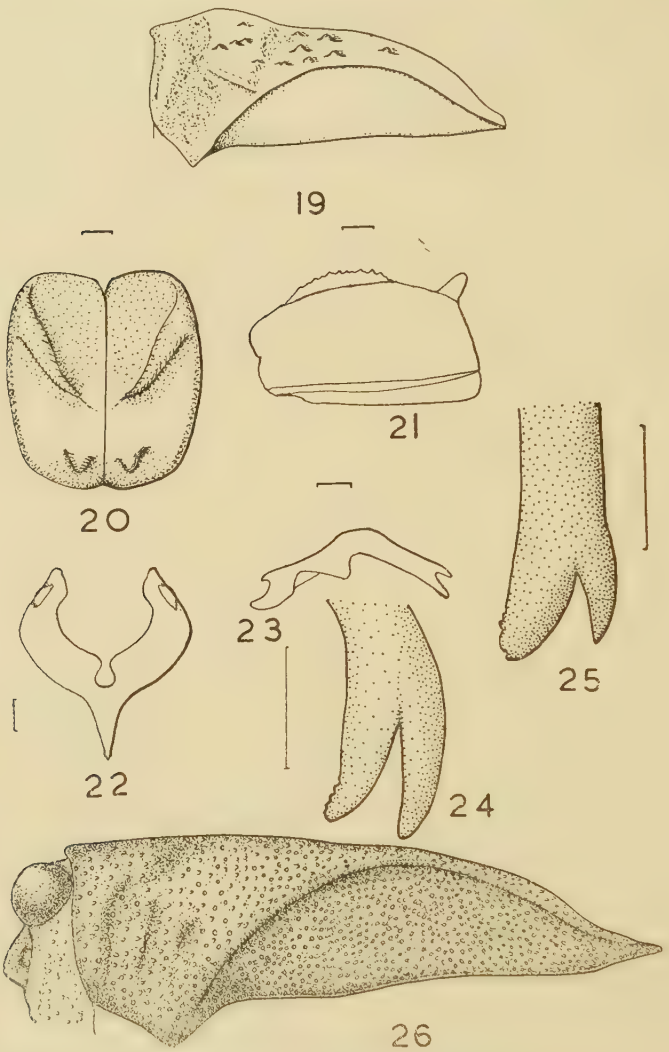
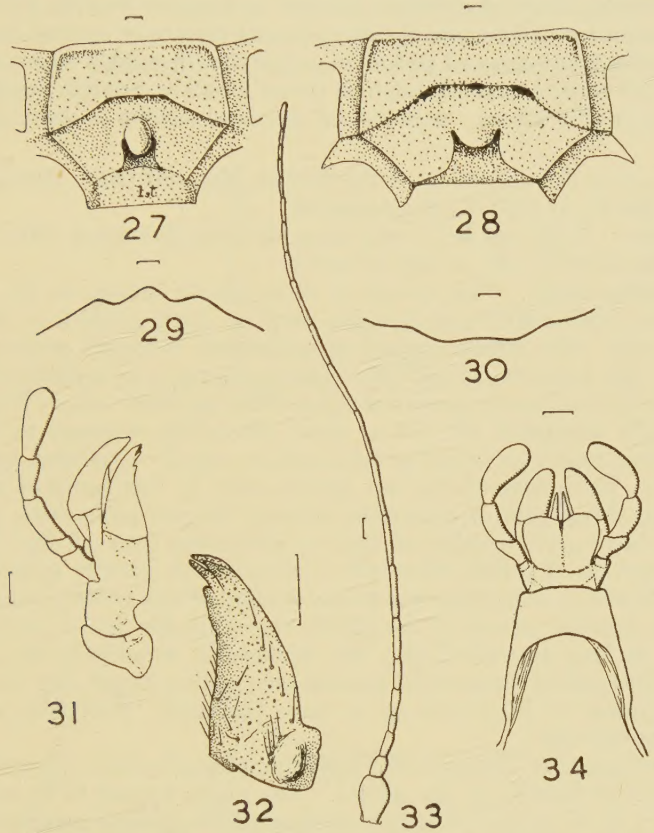


Fig. 19.—*Bufonides uvarovi* sp. n. Lateral left view of female pronotum.

Figs. 20–26.—20. Dorsal view of subgenital plate and pallial valve of *Bufonides uvarovi* sp. n. 21. Left lateral view of same. 22. Dorsal view of phallic organ of same. 23. Left lateral view of same. 24. Right lateral view of anterior end of phallic organ of *B. antennatus* Bol. 25. Same of *B. uvarovi* sp. n. 26. Left lateral view of male pronotum of same.

shown in fig. 19. *Head* on vertex on each side near middle of eye with a moderately high tuberculate carina about 0·35 mm. long, subparallel to inner margin of eye, and behind carina with a broad, moderately deep, irregular depression; least breadth between eyes less than horizontal diameter of eye (0·71 mm. : 0·78 mm.); facial scutellum with greatest

breadth (0·35 mm.), which is between antennal bases, equal to length of basal antennal segment; lateral facial carinae moderately prominent; surface of head microscopically asperate throughout and with feebly convex round to oval granules which vary in breadth from 0·04 mm. to 0·09 mm., have on anterior margin a single fine seta about a fourth to half as long as its respective tubercle, and separated by less than one to six diameters, though below fastigium and eyes sparser. Eyes prominent, vertical diameter greater than horizontal (0·85 mm. : 0·78 mm.). *Pronotum* with median anterior margin, as seen from



FIGS. 27–34.—*Bufonides uvarovi* sp. n. 27. Ventral view of male meso- and metasternum. 28. Same of female. 29. Ventral view of anterior margin of male prosternum. 30. Same of female. 31. Ventral view of right maxilla. 32. Inner view of right lacina. 33. Antenna of female. 34. Ventral view of labium.

above, obtusely produced over occiput for a distance of 0·07 mm. so that apex scarcely attains fastigium. General form as shown in fig. 19. Dorsum on posterior three-fifths with about 11 oval gibbosities a third to half as broad as eyes and everywhere separated by at least one diameter and generally by three or four. Surface throughout densely and finely alutaceous and with numerous granules about 0·07 mm.–0·09 mm. broad, each giving rise on posterior margin to a very fine seta a fourth to half as long as its respective tubercle; surface also with punctures about as coarse as granules and usually separated by one to two diameters; surface of vertical lateral region rarely granulate and with punctures like those of dorsum but denser and slightly shallower. *Legs* with dorsal and ventral margins of front femora entire; dorsal margin densely set with oblong tubercles; outer face with numerous and inner face with a few polished granules similar to those of head. Middle

femora with dorsal margin entire and ventral with two feebly developed teeth, both margins densely set with oblong tubercles; outer face with two feebly developed longitudinal subparallel ridges (as usual, the dorsal of these also forms outer dorsal margin of femora) and also with numerous large polished tubercles like those of dorsum. Hind femora 6·5 mm. long and shaped like that figured for *sellatus* (fig. 1); tops of oblique and other ridges with granules slightly finer than those of dorsum of pronotum. *Ovipositor* as figured (figs. 3 and 13).

Male: Smaller, length of pronotum, 8·0 mm. and greatest breadth, 4·5 mm.; paler, apical fifth and antero-lateral sides of pronotum much paler than elsewhere, being on these regions colour of head; pronotal gibbosities on posterior three-fifths absent or nearly so; pro-, meso-, and metasternum differing from that of female as shown in figs. 27–30; ninth sternum very broadly dilated. *Genitalia* and associated sclerites as shown in figs. 20–23 and 25.

Type: ♂, in the collection of the British Museum (Nat. Hist.). PAPUA: Kokoda, 1200 ft., vi.1933 (*L. E. Cheesman*).

Paratypes: 6 ♂♂ and 5 ♀♀ with same data as above but collected also in the following months: iv, v, viii, ix, and x.

Comparative notes: This species is most nearly related to *B. antennatus* Bolivar, but both males and females may be distinguished by having the pronotum only very feebly instead of moderately strongly projecting above occiput (*cf.* figs. 6 and 26, 12 and 19). The females may be separated by having the pronotal gibbosities on posterior three-fifths less than half as broad as eyes and generally separated by 1–2 or more diameters, whereas in *antennatus* they are often nearly as broad as eyes and are usually separated by less than a diameter. The males of the two species may be distinguished as follows: (1) posterior discal part of pronotum without distinct gibbosities, whereas in *antennatus* there are a number of distinct gibbosities here (*cf.* figs. 6 and 26); (2) lateral margin of pallial valve with a conspicuous, heavily sclerotised ridge (fig. 20), whereas in *antennatus* the lateral margin of this valve is simple (fig. 7); and (3) the anterior process of the phallic organ has the dorsal projection only two-thirds as long as ventral (fig. 25), whereas in *antennatus* the dorsal and ventral projections of the anterior process are equal in length (fig. 24).

All specimens of *B. uvarovi* sp. n. have the label, 'Bufonides antennatus Bol., K. Gunther det.'.

Before me are also 7 female and 3 male nymphs collected in the same months and in the same locality as the adults. The males appear to be in their last stage, and it is of interest to note that the middle anterior margin of the prosternum is only slightly more convex than that of female. The middle region of the metasternum appears to be similar to that of female nymphs, though it cannot be seen distinctly, as through that of all three specimens is a pin.

REFERENCES.

BOLIVAR, I., 1898, Contributions à l'étude des Acridiens. Espèces de la faune Indo et Austro-Malaisienne du Museo Civico di Storia Naturale di Genova.—*Ann. Mus. Stor. nat. Genova,* (2) **39** : 66–101.

GÜNTHER, K., 1938, Revision der Acrydiinae, I.—*Mitt. zool. Mus. Berlin,* (2) **23** : 299–437, 109 figs.

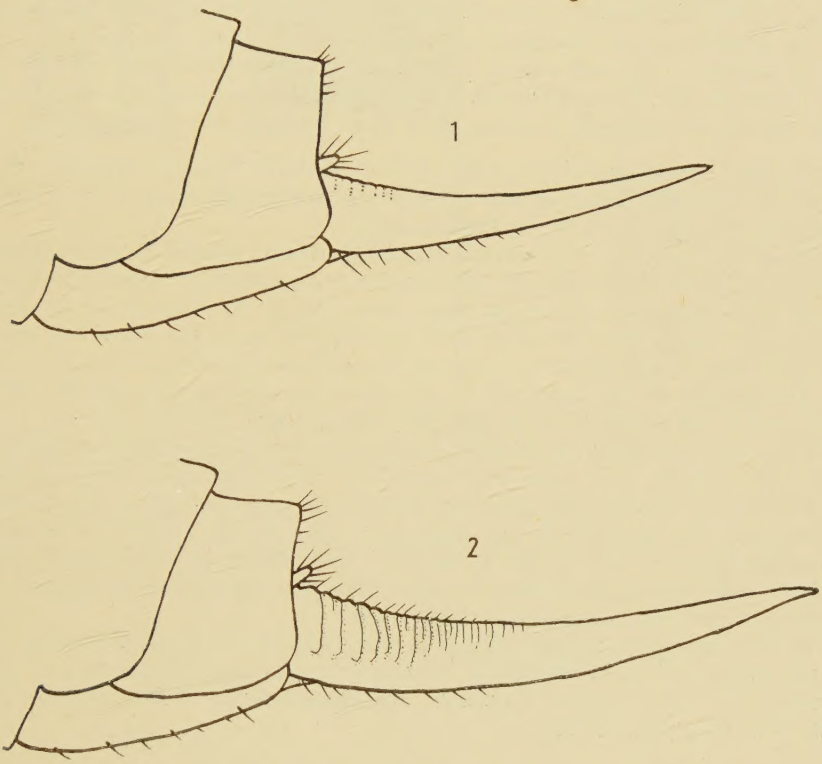
——, 1938, Acrydiinen (Orthoptera, Acrididae) von Neu Guinea. Hauptsächlich aus den Ausbeuten von Professor Dr. Bürgers (1912/13), Dr. E. Mayr (1928), G. Stein (1931) und Miss L. E. Cheesman (1933/34).—*Nova Guinea* (n.s.) **2** : 1–46, 80 figs.

HANCOCK, J. L., 1906, Orthoptera, fam. ACRIDIIDAE, subfam. TETRIGINAE.—*Gen. Ins.*, **48** : 1–79, 4 pls., 28 figs.

A NEW SPECIES OF *PLERONEURA* KONOW (XYELIDAE) FROM ALGIERS (HYMENOPTERA SYMPHYTA)

By Robert B. Benson, M.A., F.R.E.S.
(*Department of Entomology, British Museum (Natural History).*)

Dr. L. Berland of the Muséum National d'Histoire Naturelle, Paris, has recently sent to me for determination representatives of a new species of *Pleroneura* Konow collected by Monsieur P. de Peyerimhoff in the mountainous region of Babor, Algiers.



Figs. 1–2.—1. Sawsheath and apex of abdomen in *Pleroneura dahlii* (Hartig); 2. *P. numidica* sp. n.

Pleroneura numidica sp. n.

♀. *Colour* black or piceous with the following parts brown : mouth-parts, labrum, front half of clypeus, two basal segments of antenna, legs (piceous on the middle and hind coxae at the base, the middle and hind tibiae and all the tarsi), abdomen from the 7th segment (although the middle of the tergite of this segment and the whole of the underside of the abdomen are more or less piceous and the ♀ sawsheath, except at the extreme tip, is black); yellowish-white are the margins of the pro-notum, -episternum and -sternum, the parapterum, the hind margin of the tegula, an inverted V on the mesepisternum, the hind margins

of the abdominal segments especially at the sides of the basal tergites. Wings slightly infuscate, the fore-wings denser and yellower than the hind-wings; venation and stigma pale brown.

♂ as in ♀ but on the abdomen only the genital plate is brown. *Length :* ♀ 5·5 mm. (excluding sawsheath); fore-wing 6·5 mm.; antenna 2·4 mm.; saw 2·5 mm. ♂ 5 mm.; fore-wing 5·5 mm.; antenna 2·4 mm.

♂♀. *Punctation :* head and thorax dull all over with very fine coriaceous to rugulose sculpture; mesonotum with regular shallow punctures as well; abdomen shining with fine transverse coriaceous sculpture. *Pubescence* very fine and pale; obsolete on dorsum of abdomen. *Head* with mouth-parts normal; malar space about as long as the apical breadth of the 1st antennal segment; genal carina absent; POL : OOL as 1 : 1·6; antenna with the length of the 9 apical segments to 3rd segment as 2·8 : 3·8. *Thorax* as in *P. dahlii* (Htg.). *Wings* with the 2nd transverse radial vein received in the 3rd cubital cell (holotype and one paratype) or else interstitial with 2nd transverse cubital vein (one paratype) or absent (allotype). *Legs* with a distinct subapical tooth to the tarsal claw. *Abdomen* with the ♀ sawsheath (fig. 2) about twice as long as the oblong plate and longer than the hind tibia; the saw (or sawsheath + oblong plate) about as long as the antenna.

Algeria : northern slope of Mt. Babor (Kabylie Range), 1900 m. 5 ♀♀, 1 ♂ (3 ♀♀ including holotype and 1 ♂ allotype in Paris Museum, 2 ♀♀ in British Museum), 16–20.vi.1939 (*P. de Peyerimhoff*).

From the two other very closely related European species *P. dahlii* (Hartig) and *P. coniferarum* (Hartig) the new species is separated at once in both sexes by its pale margined abdominal segments, and in the female by its longer sawsheath, longer than the hind tibia (not shorter as in the other two species just mentioned) and about as long as the antenna (instead of shorter). Also the proportions of the length of the sheath to the oblong plate are 2 : 1 in the new species and about 1·3 : 1 in the other two (cf. figs. 1 and 2).

This very interesting new species was taken when the mountain summit was still covered with snow, and was apparently associated with *Abies numidica* De Lannoy *ex* Carrière (the Algerian Pine), a species confined to the northern slopes near the summit of this mountain. No definite information on the immature stages of any species in the genus *Pleroneura* is yet available, but it would appear that at least the two other European species are associated with coniferous forest and possibly also with *Abies*.

In the closely related genus *Xyela* Dalman I have now found the larva of one of the species *X. julii* Brébisson feeding in a staminate flower bud of *Pinus sylvestris* L. on Ivinghoe Common, Buckinghamshire (*vide* Benson, 1940, *Ent. mon. Mag.* **76** : 35–36).